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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,741	10/06/2003	Steven Craig Patterson		5753

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Steven C. Patterson
405 Marion Rd.
Middleboro, MA 02346-3103

EXAMINER

FAULK, DEVONA E

ART UNIT	PAPER NUMBER
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2615

MAIL DATE	DELIVERY MODE
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07/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/680,741

Applicant(s)

PATTERSON, STEVEN CRAIG

Examiner

Devona E. Faulk

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6 and 8-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-6 is/are allowed.
- 6) ☒ Claim(s) 8 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 9-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/6/2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Remarks

1. The applicant has withdrawn claims 1,2 and 7.
2. Claims 8-20 were indicated as allowable but the examiner has determined that claim 8 is not in allowable form. The indicated allowability of claims 8-20 is withdrawn in view of the newly discovered reference(s) to Kaneda and Marash. Rejections based on the newly cited reference(s) follow. The examiner asserts that the prior art used to reject claims 1,2 and 7 in the previous office action discloses the limitations of claim 8. The examiner is using the same rejection used in the previous rejection in addition to citing how the prior art reads on the limitation indicated as allowable previously for claim 8.
3. Claims 3-7 were objected as being dependent upon a rejected claim. The applicant has rewritten claims 3,5,6 in independent form.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claim 8,14-20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneda et al, US Patent 4,536,887 in view of Marash, US Patent 5,825,898.

Regarding claim 8, Kaneda et al teach a

microphone array comprising a reference microphone 14 and three satellite microphones 11 to 13 in figure 21D. All sounds are captured by the microphones.

Kaneda discloses in Figure 21 D a circular arrangement of the microphones that reads on a housing which maintains said reference microphone and said satellite microphones in correct relation to one another. If the arrangement is as shown in 21D it is obvious that the housing would have to enable this arrangement. . Kaneda fails to disclose averaging the signals from the satellite microphones and subtracting the averaged signal from the signal of the reference microphone. Marash discloses a system for reducing interference comprising a plurality of microphones 1a-1d, a main channel matrix 3, and a reference channel matrix 4. Figure 11 demonstrates the procedure followed by the DSP of the system. The procedure involves calculating the average of all the reference channels and subtracting the average from the main channel power. Thus Marash teaches averaging the signals from the satellite microphones (reference channels) and subtracting the average from the reference microphone (main channel). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kaneda et al per the teachings of Marash for the purpose of reducing noise interference

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Regarding claim 14, the examiner takes official notice that amplification of a signal is known in the art. It would have been obvious to modify Kaneda as modified by Marash to incorporate an amplifier in order to provide an amplified output signal.

Regarding claims 15 and 16, the examiner takes official notice that filtering a signal is known in the art. It would have been obvious to modify Kaneda as modified by Marash to filter the difference signal in order to block any unwanted frequency components.

Regarding claim 19, Kaneda as modified discloses further including a speaker, which transduces said signal to sound (Kaneda teaches of outputting the signal to a speaker; column 9, lines 27-41).

Regarding claims 17 and 18, the examiner takes official notice that it is known in the art to transmit sound signals to an external device via a connector or jack, as with a headphone. It would have been obvious to modify Kaneda as modified to include an output connector that is a jack so that the output could be transmitted to a headphone as well as a speaker.

Regarding claim 20, Kaneda as modified discloses wherein said signal processing circuit contains no capacitor in the signal path, whereby attenuation of low-frequency signal components due to series capacitance is eliminated (See Kaneda and Marash as applied to claim 8)

Claim Objections

6. Claims 9-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

7. Claims 3-6 are allowed.

8. Regarding claims 3,5,6, prior art Kaneda et al (US Patent 4,536,887 discloses a microphone array comprising a reference microphone 14 and three satellite microphones 11 to 13 in figure 21D. All sounds are captured by the microphones. Kaneda et al do not disclose averaging the signals from the satellite microphones and subtract the averaged signal from the signal of the reference microphone. Prior art Marash, US Patent 5,825,898 discloses discloses a system for reducing interference comprising a plurality of microphones 1a-1d, a main channel matrix 3, and a reference channel matrix 4. Figure 11 demonstrates the procedure followed by the DSP of the system. The procedure involves calculating the average of all the reference channels and subtracting the average from the main channel power. Thus Marash teaches averaging the signals from the satellite microphones (reference channels) and

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subtracting the average from the reference microphone (main channel). Prior art Arvidsson US 2003/0169890 discloses an audio receiving system.

Regarding claim 3 the prior art or combination thereof fails to disclose or make obvious wherein positioning said satellite transducers, on said circle centered on said reference transducer, such that said satellite transducers divide said circle into equal arcs, is accomplished by a housing which holds said reference transducer and said satellite transducers in correct relation to one another.

Regarding claim 5, the prior art or combination thereof fails to disclose or make obvious wherein averaging is accomplished by connecting said satellite transducers in parallel between a direct current-biased signal wire and an electrical ground.

Regarding claim 6, the prior art or combination thereof fails to disclose or make obvious wherein the portion of said average satellite signal, to be subtracted from said reference signal, is continuously adjustable from zero to 100 percent.

Therefore, the prior art or combination thereof fails to disclose or make obvious a method for transmitting sound originating close to a site, while sharply attenuating sound origination farther from said site.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEF



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